

REMARKS

Support for new Claims 37-56 is found in the Claims as originally filed. Additional support for amended Claims 37, 49, and 55 can be found on page 9, line 18 of the Specification, as originally filed. These Amendments are being entered to bring the claims into conformance with, *inter alia*, 37 C.F.R. §1.75. No new matter has been added.

Attached hereto is a marked-up version of the changes made to the Specification and Claims by the current Amendments. The attached page is captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE.**" If there are any additional fees due and owing by reason of this Amendment, the Examiner is hereby authorized to charge Deposit Account No. 16-2480 in the name of The Procter & Gamble Company.

Respectfully submitted,

STEVEN R. MERRIGAN, ET AL.

A handwritten signature in black ink, appearing to read 'Peter D. Meyer', is written over a horizontal line.

By: Peter D. Meyer
Attorney for Applicant(s)
Registration No. 47,792
(513) 634-9359

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Customer No. 27752

VERSION WITH MARKINGS TO SHOW CHANGES MADE**THE SPECIFICATION HAS BEEN AMENDED AS FOLLOWS:**

The following section on page 1, line 13, of the Specification has been inserted:

--CROSS-REFERENCE TO RELATED APPLICATION

This Application claims the benefit of U.S. Provisional Application No. 60/393,283, filed on July 1, 2002.--

The following two paragraphs have been inserted on page 23, line 7:

--All documents cited in the Detailed Description of the Invention are, in relevant part, incorporated herein by reference; the citation of any document is not to be construed as an admission that it is prior art with respect to the present invention.

While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.--

THE ABSTRACT HAS BEEN AMENDED AS FOLLOWS:

[ABSTRACT

The present invention relates to a process for making polymerized hydrogel, in particular adhesives, which are characterized by very low amount of residual starting monomer(s), impurity(s) and/or by-products which could be formed during polymerization, such as acrylamide, acrylonitrile or acrolein.

After a first polymerization step, which is conducted from a reaction medium comprising starting monomer(s) and at least one polyol, the resulting hydrogel is then post-treated with a compound which chemically reacts with said residual monomer(s), impurity(s) and/or with said by-products the said polymerization could produce, to thereby reduce said residual starting monomer(s), impurity(s) and/or said by-products within said hydrogel.

The present invention also relates to polymerized hydrogels, in particular adhesives, comprising 10-90 wt% water, 10-60 wt% cross-linked hydrophilic polymer made from starting monomer(s) comprising acrylic acid, and 10-80 wt% of at least one polyol, such hydrogel being

prepared by polymerizing said starting monomer(s) in the presence of said water and said polyol(s), wherein such hydrogels contain less than 500 ppb, preferably less than 100 ppb, more preferably less than 50 ppb and most preferably less than 20 ppb of α,β -unsaturated carbonyl by-product(s) derived from said polyol(s) during polymerization, and wherein the level of residual starting monomer(s) is below 200 ppm, preferably below 100 ppm, more preferably below 50 ppm, even more preferably below 20 ppm, and most preferably below 10 ppm.]

--ABSTRACT

We disclose polymerized hydrogels and processes for making polymerized hydrogels comprising from 10 weight percent to 90 weight percent water, 10 weight percent to 60 weight percent cross-linked hydrophilic polymer made from starting monomers, and 10 weight percent to 80 weight percent of at least one polyol. The hydrogel is prepared by polymerizing the starting monomers in the presence of the water and polyols.--

THE CLAIMS HAVE BEEN AMENDED AS FOLLOWS:

Claims 1-36 have been deleted without prejudice.

New Claims 37-56 have been added as follows:

37. (New) A process for making a hydrogel comprising the steps of:

- 1) polymerizing at least one starting monomer within a reaction medium, said reaction medium comprising from 10 weight percent to 70 weight percent water, from 10 weight percent to 60 weight percent of said at least one starting monomer, and from 10 weight percent to 80 weight percent of at least one polyol, said reaction medium forming a hydrogel thereby; and,
- 2) chemically treating said hydrogel with a first compound capable of reacting with a second compound present in said hydrogel, said second compound being selected from the group consisting of residual starting monomers, impurities, by-products produced by said polymerization reaction, and combinations thereof, said chemical treatment reducing the concentration of said second compound present within said hydrogel.

38. (New) The process of Claim 37, wherein said chemical treatment reduces the concentration of said residual starting monomers present within said hydrogel below 10,000 ppm.

39. (New) The process of Claim 38, wherein said chemical treatment reduces the concentration of said residual starting monomers present within said hydrogel below 10 ppm.

40. (New) The process of Claim 37, wherein said chemical treatment further comprises the step of adding a nucleophilic compound to said hydrogel, said nucleophilic compound being capable of reacting with said second compound, said nucleophile being added by an addition reaction.
41. (New) The process of Claim 40, wherein said nucleophilic compound is selected from the group consisting of ammonia, amines, polyamines, hydroxylamine, hydrazine, thiols, sulfites, metabisulfites, bisulfites, and combinations thereof.
42. (New) The process of Claim 41, wherein said nucleophilic compound comprises bisulfite.
43. (New) The process of Claim 37, wherein said by-products produced by said polymerization reaction comprise at least one α,β -unsaturated carbonyl derived from said at least one polyol.
44. (New) The process of Claim 37, wherein said by-products produced by said polymerization reaction comprises acrolein.
45. (New) The process of Claim 37, wherein the polymerization of said at least one starting monomer is conducted by at least partially subjecting said at least one starting monomer, said at least one polyol, and said water to UV irradiation.
46. (New) The process of Claim 45, wherein said UV irradiation has a UV intensity at wavelengths less than 280 nm that is less than 10% of the total integrated UV intensity of wavelengths less than 400 nm.
47. (New) The process of Claim 45, wherein said polymerization step further comprises the step of subjecting said at least one starting monomer, said at least one polyol, and said water to a total amount of UV irradiation, said total amount of UV irradiation having an energy ranging from 0.1 J/cm² to 30 J/cm².
48. (New) The process of Claim 37, wherein said at least one starting monomer comprises acrylic acid.
49. (New) A hydrogel comprising from 10 weight percent to 70 weight percent water, from 10 weight percent to 60 weight percent of cross-linked hydrophilic polymer made from at least

one starting monomer, and from 10 weight percent to 80 weight percent of at least one polyol, said hydrogel being produced by polymerizing said at least one starting monomer in the presence of said water and said at least one polyol, wherein said hydrogel comprises less than 100 ppb of at least one α,β -unsaturated carbonyl by-product derived from said at least one polyol during said polymerization.

50. (New) The hydrogel of Claim 49, wherein said hydrogel further comprises less than 20 ppb of said at least one α,β -unsaturated carbonyl by-product derived from said at least one polyol during said polymerization.
51. (New) The hydrogel of Claim 49, wherein said at least one α,β -unsaturated carbonyl by-product comprises acrolein.
52. (New) The hydrogel of Claim 49, wherein said hydrogel further comprises less than 200 ppm of residue of said at least one starting monomer.
53. (New) The hydrogel of Claim 52, wherein said hydrogel further comprises less than 10 ppm of said residue of said at least one starting monomer.
54. (New) The hydrogel of Claim 52, wherein said at least one starting monomer comprises acrylic acid.
55. (New) A hydrogel comprising from 10 weight percent to 70 weight percent of water, from 10 weight percent to 60 weight percent of a cross-linked hydrophilic polymer made from at least one starting monomer, and from about 10 weight percent to 80 weight percent of at least one polyol, said hydrogel being produced by polymerizing said at least one starting monomer in the presence of said water and said at least one polyol and thereafter, treating said product with a nucleophilic compound that reacts with at least one α,β -unsaturated carbonyl by-product derived from said at least one polyol during said polymerization, and wherein said hydrogel comprises at least 20 ppb of at least one nucleophilic addition product of said at least one α,β -unsaturated carbonyl by-product and said nucleophilic compound.
56. (New) The hydrogel of Claim 55, wherein said at least one nucleophilic addition product comprises a compound selected from the group consisting of sodium 3-propanal sulfonate, 1-hydroxy-2-propene-1-sulfonate, 1-hydroxy-1, 3-propane disulfonate, and combinations thereof.